

irradiation target imaging means for non-invasively taking images of an irradiation target region including the irradiation target;

irradiation means for administering radiation to the irradiation target region according to prescribed irradiation conditions;

ai position and direction measuring means for measuring positions and directions of said irradiation target positioning means, said irradiation target imaging means and said irradiation means, and for computing relative positions and directions between them;

irradiation condition correcting means for obtaining position and direction of the irradiation target region in the images using computation results of said position and direction measuring means and compared results obtained by comparing the irradiation target regions in the images successively taken by said irradiation target imaging means, and for correcting the irradiation conditions in which the obtained position and direction is reflected; and

control means for controlling the radiation to the irradiation target region in response to the irradiation conditions obtained as a result of the correction by said irradiation condition correcting means.

5. (Amended) An irradiation target movement monitoring method of an irradiation system including irradiation target positioning means for placing an object having an irradiation target to be subjected to irradiation, irradiation target imaging means for taking images of an irradiation target region including the irradiation target, and irradiation means for administering radiation to the irradiation target region according to prescribed irradiation conditions, said irradiation target movement monitoring method comprising:

Or  
an image acquisition step of successively and non-invasively taking images of the irradiation target region by said irradiation target imaging means;

a position and direction measuring step of measuring positions and directions of said irradiation target positioning means, said irradiation target imaging means and said irradiation means, and of computing relative positions and directions between them; and

an irradiation target monitoring step of obtaining positions and directions of the irradiation target regions in the images using computation results obtained by said position and direction measuring means and compared results obtained by comparing the irradiation target regions in the images successively taken in the image acquisition step.

7. (Amended) A irradiation target position recognizing method of an irradiation system including irradiation target positioning means for placing an object having an irradiation target to be subjected to irradiation, irradiation target imaging means for taking images of an irradiation target region including the irradiation target, and irradiation means for administering radiation to the irradiation target region according to prescribed irradiation conditions, said irradiation target movement monitoring method comprising:

an image acquisition step of successively and non-invasively taking images of the irradiation target region by said irradiation target imaging means;

a position and direction measuring step of measuring positions and directions of said irradiation target positioning means, said irradiation target imaging means and said irradiation means, and of computing relative positions and directions between them; and

a target position recognizing step of obtaining positions and directions of the irradiation target regions in the images using computation results obtained by said position and direction measuring means and compared results obtained by comparing the irradiation target regions in the images successively taken in the image acquisition step, and of correcting the irradiation conditions by reflecting the positions and directions in the

images.

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8. (Amended) The irradiation target position recognizing method of an irradiation system according to claim 7, wherein the target position recognizing step obtains the positions and directions of the irradiation target regions in the images using computation results obtained in the position and direction measuring step and compared results obtained by comparing the irradiation target regions in the images successively taken by said irradiation target imaging means of same modality.

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Please add the following new claims 9-12:

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9. (New) A radiation system, comprising:

- a positioning device for positioning an object including an irradiation target;
- an irradiation device;
- at least one imaging device for non-invasively generating images of an irradiation target region including said irradiation target;
- a measuring device for measuring position and direction of said irradiation target based on said generated images using a coordinate system including coordinate positions of said positioning device, said irradiation device, and said at least one measuring device;

a processing device for determining a current position and direction of said irradiation target based on comparing successive generated images input from said measuring device using a predetermined algorithm; and

a controller for directing said irradiation device to irradiate said irradiation target based on said current position and direction of the irradiation target.

ay 10. (New) The radiation system of claim 9, wherein said at least one imaging device to generate said images in at least two different forms.

11. (New) A method of radiating, comprising:  
positioning an object including an irradiation target;  
generating images non-invasively of an irradiation target region including said irradiation target;

measuring position and direction of said irradiation target based on said generated images using a coordinate system including coordinate positions of said positioning device, said irradiation device, and said at least one measuring device; and

determining a current position and direction of said irradiation target based on comparing successive generated images input from said measuring device using a predetermined algorithm; and